

REMARKS

Claims 1-7, 9-12 and 33-38 are currently pending for further examination. Claims 1-7, 9, and 11-12 are currently amended. Claims 33-38 are new. Claim 8 is canceled with this amendment. Claims 13-32 were withdrawn as a result of a previous restriction requirement.

Information Disclosure Statement

Applicant thanks the Examiner for considering the references cited in the corresponding PCT Search Report. Applicant encloses with this response a separate sheet listing each of the cited references identified in the PCT Search Report and respectfully requests those references be printed on any patent issuing from the present application.

Claim Rejections Under 35 U.S.C. § 112, ¶ 2

Claims 1-12 were rejected under 35 U.S.C. 112, second paragraph, as allegedly indefinite. In particular, the Examiner alleges that the limitations, “a first fluid divider” and “a second fluid divider,” are unclear because they are only recited in terms of functional language (see Office action at p. 3). Applicant respectfully disagrees.

Both “first fluid divider” and “second fluid divider” correspond to structural features of the claimed device. The specification of the current applications describes several different types of fluid dividers including, for example, pumps, enclosed chambers of fluid having an inlet in a main channel, mechanical valves, and heaters capable of nucleating a gas bubble in the fluid column (see, e.g., paragraph [0046] of the application as published).

Moreover, even if the limitations were only presented in terms of functional language, which Applicant does not concede, the limitations should not be rejected as indefinite. As explained in the Manual for Patent Examining Procedure (MPEP), “[t]here is nothing inherently wrong with defining some part of an invention in functional terms. Functional language does not, in and of itself, render a claim improper. A functional limitation must be evaluated and considered, just like any other limitation of the claim, for what it fairly conveys to a person of ordinary skill in the pertinent art in the context in which it is used” (see MPEP 2173.05(g),

emphasis added). In view of the foregoing, Applicant respectfully requests withdrawal of the rejections of claims 1-12 were rejected under 35 U.S.C. 112.

Claim Rejections Under 35 U.S.C. §§ 102(b)/103(a)

Claims 1-12 were rejected as allegedly anticipated by GB 2097692 ("Stewart"). Claims 10-12 also were rejected as allegedly unpatentable over the Stewart reference. Applicant notes that although claims 10-12 were identified as allegedly anticipated, no arguments were set forth in the Office action supporting anticipation of those claims.

In view of the foregoing amendments and the following remarks, Applicant respectfully requests reconsideration and withdrawal of the claim rejections.

Independent claim 1, as amended, recites, in part, a device for contacting a first fluid and a second fluid, where the device includes a first fluid divider operable to isolate the first fluid in an isolated segment of a first channel, a second fluid divider operable to isolate the second fluid in an isolated segment of the second channel, and a third channel connecting the isolated segment of the first channel and the isolated segment of the second channel, in which the third channel is configured such that capillary pressure of an aqueous solution entering the third channel from the first channel or the second channel is negative.

Examples of those features can be found in the FIGS. 1 and 3 and in ¶¶ [0042]-[0050], [0076] of the published patent application. In those examples, a fluid device includes two main channels that are connected by a third channel. The third channel is configured such that a capillary pressure prevents aqueous fluids in the main channels from entering the third channel, unless additional pressure is added to push the fluids into the third channel. By configuring the third channel in this manner, the device can, in some implementations, be used to obtain isolated segments of fluid and subsequently control mixing of the isolated segments. In contrast, the Stewart reference fails to disclose or render obvious the subject matter of pending claim 1.

The Stewart reference discloses a device capable of mixing two reagents, in which the device includes valves 10, 14 connected to corresponding ducts, and a Y-junction 24 that couples the corresponding ducts together (*see* FIG. 9 and page 3, lines 19-56). The Stewart reference

fails, however, to disclose that the device includes a “third channel” configured such that capillary pressure of an aqueous solution entering the third channel from a first channel or the second channel is negative, as recited by claim 1. Although the Stewart reference discloses Y-junction 24 for allowing droplets from different ducts to coalesce, there is no disclosure that the Y-junction 24 is configured such that capillary pressure of an aqueous solution entering the Y-junction 24 from either of the ducts is negative. Instead, the Stewart reference simply discloses that the Y-junction 24 is coupled to a reservoir 19. Nor would it have been obvious to modify the Stewart reference in order to obtain the subject matter of pending claim 1. In particular, the Stewart reference fails to disclose or support any reason to configure the Y-junction 224 such that capillary pressure of an aqueous solution entering the Y-junction 24 from a first or second channel is negative.

For at least the foregoing reasons, claim 1 should be allowed. Claims 2-7, 9-12 and 33-38 depend from claim 1 and should be allowed for at least the same reasons as claim 1.

By responding in the foregoing remarks only to particular positions taken by the examiner, the applicant does not acquiesce with other positions that have not been explicitly addressed. In addition, the applicant's selecting some particular arguments for the patentability of a claim should not be understood as implying that no other reasons for the patentability of that claim exist. Finally, the applicant's decision to amend or cancel any claim should not be understood as implying that the applicant agrees with any positions taken by the examiner with respect to that claim or other claims.

The excess claims fees and the fee for the Petition for Extension of Time are being paid concurrently herewith on the Electronic Filing System (EFS). Please apply any other charges or credits to deposit account 06 1050.

Respectfully submitted,

Date: 12/22/10

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